Terms of Reference (TOR) for 2013 Data Collections Science Program Reviews

Objective

The objective for these reviews is to review and evaluate the Center's current scientific fishery-dependent and fishery-independent data as it relates to fishery stock assessments conducted pursuant to the Magnuson-Stevens Act:

- NOAA ship-based surveys
- Cooperative research surveys
- Logbook and observer data
- Data management and quality control

Reviewers will provide advice to the Center on the direction and quality of these data collection and management programs

Using as context, two-three or more typical and important stock assessments conducted by the Center, reviewers should address:

1. To what extent do fishery independent survey data quality, statistical precision, and timeliness issues impact overall assessment accuracy, precision and timeliness?
2. What are the major fishery independent survey successes and how should they be supported?
3. What are the major fishery independent survey limitations/weaknesses and how could they be resolved? Define potential improvements and priorities for recommended improvements.
4. To what extent do fishery dependent data quality, statistical precision, and timeliness issues impact overall assessment accuracy, precision and timeliness?
5. What are the major fishery dependent data sources successes and how should they be supported?
6. What are the major fishery dependent data limitations/weaknesses and how could they be resolved? Define potential improvements and priorities for recommended improvements.
7. What recommendations do you have for prioritizing fishery-independent and fishery-dependent data collection improvements?
8. To what extent are fishery independent and fishery dependent data readily accessible to Center stock assessment scientists and to various external researchers who may wish to replicate NMFS stock assessments?
9. Identify the highest priority needs for improving fishery dependent and fishery independent data. Define potential improvements.

Overarching Questions for Reviewers

- Relationship of current and planned fishery assessment data activities to Center fishery assessments mandates and requirements – is the Center doing the right things?
- Opportunities – are there opportunities that the Center should be pursuing in collecting and compiling fishery assessment data, including shared approaches with partners?
- Scientific/technical approach – are the Center's fishery data objectives adequate, and is the Center using the best suite of techniques and approaches to meet those objectives?
- Organization and priorities – is the Center's fishery data system properly organized to meet its mandates and is the allocation of resources among program appropriate?
- Scientific conduct – are the Center's fishery data programs being conducted properly (survey design, standardization, integrity, peer review, transparency, confidentiality, PII, etc.)?

NOT IN TOR FOR REVIEWERS BUT DIRECTION TO THE CENTERS:

Specific information to be provided by each Center to the review committee:

Provide an overview of data collection for the Center. Then identify the two-three important and typical fishery stock assessments for the Center and explain why they are a) important and b) typical. Identify the types of assessments that are atypical for the Center.

Data collection Overview (include a process diagram for data collection – what comes in and where it goes to)

1) List sources of FD and FI data used in your stock assessments, including data from sources external to NMFS (use the list of managed stocks in FMPs, plus international stocks for which your region has assessment responsibility)
    a. What you do with the data
    b. Matrix of assessments vs. survey data sources (This info should be getting entered in SIS, so a report can be prepared).
    c. Matrix of assessments vs. fishery dependent data sources
    d. List stocks for which no assessment is possible due to lack of data and stocks for which some data exist but no assessment has been conducted.
    e. Who collects each type of data
    f. Describe how the data meets DQA standards and what steps are taken to assure this.
    g. Budget (for data collection, management and dissemination)
2) Data Sources (Deep dive)
    a. Fishery independent data
    b. Fishery-independent surveys –
        1. MSRA related surveys - Basic design of each survey, including principal technology deployed, seasonality, spatial coverage, history of time series, type of data included in the assessments, ancillary data collected. Use descriptions of surveys as reported to FINSS to the extent possible. Surveys should be identified by type, e.g. trawl, acoustic, optical, aerial
            a. Other (ecosystem, habitat, etc) – If these data are used in assessments, describe efforts to collect ecosystem and environmental data in conjunction with fish surveys, including predator-prey stomach contents.
        2. Fishery-independent biological sampling programs
        3. Cooperative Research data
    c. Fishery Dependent Catch Monitoring Programs
        i. Methods for surveying landed and total commercial catch- describe data sources, sampling methods, coverage, overall design, and integration of

different survey components (i.e., sampling design). Also identify agencies involved. Describe process for providing total commercial landed catch estimates for each species (i.e, estimation design).

ii. Methods for surveying discarded commercial catch – describe data sources, sampling methods, coverage, overall design and integration of different survey components (i.e., sampling design). Also identify agencies involved. Describe process for extrapolation to total discard estimates (i.e., estimation design).

iii. Methods for surveying recreational catch – describe data sources, sampling methods, coverage, overall design, and integration of different survey components (i.e., sampling design). Also identify agencies involved and describe process for landed and total catch for each species (i.e., estimation design) (if used in stock assessment).

d. Fishery-dependent biological sampling programs

i. Describe the sampling design and extent of sampling for fish lengths, fish ages, and fish reproduction by surveys and fisheries. (This should be done for dockside sampling surveys, as well as for the following)

1. Describe the processing of fishery-dependent biological samples

ii. Observer data -

iii. Electronic monitoring data –

iv. Cooperative research data –

e. VMS data

3) Data Adequacy

a. Describe the extent to which the above data sources meet assessment information needs for all managed stocks. To the extent possible, describe the effect of each data source on the precision of the assessment. Sensitivity analysis for a few species could serve as a proxy for sensitivity of other species that use similar data sources.

b. Using the matrix of stocks vs. fisheries created in 1b above, create a separate matrix for commercial landings, commercial discards, and recreational catch. For each cell, indicate whether coverage and statistical precision are good, adequate, weak, or missing. Then provide a narrative describing the characteristics of 1-5 cells with the best coverage and/or precision, and the 1-5 cells with the worst, but needed, coverage and/or precision.

c. Using the matrix for stocks vs. surveys, indicate whether coverage is good, adequate, weak, missing or NA (for surveys that have no relevance for the stock in focus). It is understood that these categories are subjective and will be difficult to assess for stocks without assessments. Then provide a narrative describing the characteristics of 1-5 cells with the best coverage, and the 1-5 cells with the worst, but needed, coverage, in order to provide a basis for comparison.

    d. For the biological data available for each stock, indicate the extent to which the data support length based and age based models.

4) Data Quality – Something here about where data quality is good/bad, our ability to adequately characterize the data quality as a risk management strategy for the assessments for which they're used, and how to improve
5) Data Timeliness (focus needs to be on impediments to completing assessments in time to support management process)
    a. for fishery-dependent data, how soon after end of fishing year are total catch and effort data and estimated statistics available for assessments (separately for commercial, recreational, observer-based discard).
        i. Impediments and remedies
        ii. Examples of good practice in meeting timeliness needs
    b. for fishery-independent surveys, how soon after the conclusion of the survey are preliminary and final data available to assessment scientists?
        i. Impediments and remedies
        ii. Examples of good practice in meeting timeliness needs
    c. What is time lag in processing biological samples, if relevant?
        i. Impediments and remedies
6) Documentation (we will need to define acceptable standards)
    a. Are FD sampling designs, data collection procedures and data processing protocols adequately documented?
        i. Impediments and remedies
        ii. Examples of good practice in meeting documentation needs.
    b. Are FI sampling designs, data collection procedures and data processing protocols adequately documented?
        i. Impediments and remedies
        ii. Examples of good practice in meeting documentation needs.
    c. Is web dissemination of raw or lightly processed data enabled for non-confidential data?
        i. Impediments and remedies
        ii. Examples of good practice in web-based data dissemination.
7) Describe partnerships with states and commissions and regions for collection and dissemination of fishery catch data (commercial and recreational), at sea observers, fishery-independent surveys
    a. For each partnership/data source identify successes and positive messages, and/or limitations and possible remedies
    b. Describe the effectiveness of data collection through cooperative research and data collection through agency surveys and targeted sampling programs
8) Research

a. What research has yielded positive results, and what research is being conducted to improve the efficiency, calibration or otherwise improve data collection (e.g., electronic logbooks, AST)
    i. For surveys
    ii. For fishery data

Appendix 1: List of generic information to be provided by each Center to the review committee:

During the review, the Center should address the following questions as related to the thematic areas under review:
• What does the Center do? What does the RO do?
• What's the societal significance of the Center's research?
• What are the linkages to NOAA Strategic and Research Plans, NMFS Strategic Plan for Fisheries Research, NMFS AGM and the Center's Science Plan?
• What are the key scientific questions being addressed?
• What are the key 5-Year Strategic Plan milestones and what is the Center's progress in achieving them?
• Who are the Center's customers and partners and how does the Center work with them?
• What are the products of the Center's research?
• What innovative or transformational research is being conducted?
• What science and applications will be transitioned?
• What are the future directions of the Center?
• How does the Center set priorities?
• How does the Center work to assure common objectives are being effectively and efficiently addressed across multiple NMFS and NOAA organizations?